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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,986	12/19/2001	Jae Yong Park	049128-5052	1161
9629 7590 08/30/2007 MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			EXAMINER ROY, SIKHA	
			ART UNIT 2879	PAPER NUMBER
			MAIL DATE 08/30/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/020,986

Applicant(s)

PARK ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18 and 26-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-18 and 26-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The Amendment, filed on June 22, 2007 has been entered and acknowledged by the Examiner. In light of amendment 35 U.S.C. 112 second paragraph rejection has been withdrawn.

Cancellation of claims 1,4-9, 19-25 and 34 has been entered.

Claims 10-18 and 26-33 are currently pending in the instant application.

Claim Objections

Claim 32 is objected to because of the following informalities:

Claim 32 has been indicated to be an independent claim and hence 'The electroluminescence device according to claim 28' should be cancelled.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 33 depending from claim 26 recites the limitation "the protective film" in line 2. There is insufficient antecedent basis for this limitation in the claim as there is no mention of protective film in claim 26.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10,11,13-15, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior art (AAPA) in view of U.S. Patent 6,383,048 to Yang et al.

Regarding claim 10, applicants' admitted prior art discloses (specification page 4 Fig. 1) an electroluminescent device comprising a transparent substrate 1, a plurality of pixel areas including plurality of scanning lines and data lines formed on the substrate, plurality of pixel electrodes 2a formed on the plurality of pixel areas, electroluminescent layer 3 stacked multi-layer comprising 3a, 3b and 3c formed over the pixel electrodes, a metal electrode 4 formed on the stacked multi-layer of the electroluminescent layer, a protective film 5 over the metal electrode, a seal cover plate 7 for sealing the EL layer and the metallic electrode 4 and a sealant 6 for adhering the seal cover plate 7 to the transparent substrate 1. Applicants' admitted prior art (AAPA) discloses all the limitations except a heat-exhausting layer formed on the outer surface of upper portion of the seal cover plate.

Yang in Embodiment 2 discloses (Fig. 3D column 4 lines 31-60) a heat-exhausting layer (covering layer) 40 made of metals of high thermal conductivity is formed on top of the seal cover film (which covers the electroluminescent element sealing from outside) 38, wherein the entire surface of the heat-exhausting film 40 contacts the seal cover 38 and thus enhances the effect of heat dissipation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a heat-exhausting layer on the outer surface of the seal cover plate of the EL device of applicants' admitted prior art as taught by Yang for enhancing the effect of heat-dissipation from the device.

Regarding claim 11 the applicants' admitted prior art discloses (page 4 line 8 Fig.1) a protective film 5 is formed on the metal electrode 4.

Regarding claims 13-15, applicants' admitted prior art discloses (Fig.1 page 4 [0013]) a moisture absorbing agent 8 formed of fine powder containing any one of BaO, CaCO₃, silica-gel, alumina is provided at the inside of the seal cover plate opposed to the metal electrode to absorb moisture and oxygen from the electroluminescent layer. It is further disclosed (page 4 lines 9-11) a supporting film 9 formed from semi-transmitting film is used for adhering the moisture absorbing agent to the inner side of the seal cover.

Regarding claim 18, here the applicant is claiming the product of electroluminescent device including a method (i.e. a process) of making the heat-exhaust layer, consequently, claim 9 is considered "product-by-process" claim. In spite of the fact that a product-by-process claim may recite only process limitations, it is the

product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, is the product itself which must be new and not obvious. As such, no patentable weight has been given to the process recited in claim 9 (see MPEP 2113).

Claim 26 – 30 and 31,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior art in view of U.S. Patent 5,811,177 to Shi et al.

Regarding claim 26, applicants' admitted prior art discloses (specification page 4 Fig. 1) an electroluminescent device comprising a transparent substrate 1, a plurality of pixel areas including plurality of scanning lines and data lines formed on the substrate, plurality of pixel electrodes 2a formed on the plurality of pixel areas, electroluminescent layer 3 stacked multi-layer comprising 3a, 3b and 3c formed over the pixel electrodes, a metal electrode 4 formed on the stacked multi-layer of the electroluminescent layer, a protective film 5 over the metal electrode, a flat seal cover plate 7 for sealing the EL layer and the metallic electrode 4 and a sealant 6 for adhering the edge of the flat seal cover plate 7 to the transparent substrate 1, the sealant having (enclosing) a space for injecting an inactive gas.

Claim 26 differs from applicants' admitted prior art in that applicants' admitted prior art does not disclose a metal thin film provided under the flat seal cover plate 7, the entire surface of the metal thin film contacting the flat seal cover plate.

Shi in relevant art of electroluminescent organic devices discloses (Fig. 4, column 3 lines 40-63) discloses a metal thin film layer 26 (such as aluminum) under the seal cover plate (epoxy encapsulant) 28, wherein the entire surface of the metal plate 26 contacts the seal plate. The use of aluminum for good heat conduction is well known in the art. Shi further discloses this metal film has low permeability of oxygen and moisture and hence yields overall structure with a better encapsulation and resistance to permeation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to provide a thin metal film under the flat seal cover plate, metal thin film contacting the flat seal cover plate of the device of applicants' admitted prior art, as taught by Shi et al. for better encapsulation of the device. The recitation of 'the metal thin film provided under the seal cover plate to transfer heat' has not been given patentable weight because is considered an intended use recitation. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987). Furthermore it is noted that aluminum being very good conductor of heat, it would transfer the heat from the device.

Regarding claims 27 - 29, applicants' admitted prior art discloses (Fig.1 page 4 [0013]) a moisture absorbing agent 8 formed of fine powder containing any one of BaO, CaCO₃, silica-gel, alumina is provided at the inside of the seal cover plate opposed to the metal electrode to absorb moisture and oxygen from the electroluminescent layer. It is further disclosed (page 4 lines 9-11) a supporting film 9 formed from semi-transmitting film is used for adhering the moisture absorbing agent to the inner side of the seal cover.

Referring to claim 30 Shi discloses the metal thin film adhering the entire surface of the seal cover plate.

Regarding claim 31 the applicants' admitted prior art, applicants' admitted prior art discloses (specification page 4 Fig. 1) an electroluminescent device comprising a transparent substrate 1, a plurality of pixel areas including plurality of scanning lines and data lines formed on the substrate, plurality of pixel electrodes 2a formed on the plurality of pixel areas, electroluminescent layer 3 stacked multi-layer comprising 3a, 3b and 3c formed over the pixel electrodes, a metal electrode 4 formed on the stacked multi-layer of the electroluminescent layer, a protective film 5 over the metal electrode, a flat seal cover plate 7 for sealing the EL layer and the metallic electrode 4 and a sealant 6 for adhering the edge of the flat seal cover plate 7 to the transparent substrate 1, the sealant having (enclosing) a space for injecting an inactive gas. AAPA further discloses a moisture absorbing agent 8 provided at the inner side of the flat seal cover plate

opposed to the metal electrode and a semi transmissive film 9 for supporting the moisture-absorbing agent held a the inner side of the flat seal cover plate 7.

Shi in relevant art of electroluminescent organic devices discloses (Fig. 4, column 3 lines 40-63) discloses a metal thin film layer 26 (such as aluminum) under the seal cover plate (epoxy encapsulant) 28, wherein the entire surface of the metal plate 26 contacts the seal plate. The use of aluminum for good heat conduction is well known in the art. Shi further discloses this metal film has low permeability of oxygen and moisture and hence yields overall structure with a better encapsulation and resistance to permeation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to provide a thin metal film under the flat seal cover plate, metal thin film contacting the flat seal cover plate of the device of applicants' admitted prior art, as taught by Shi et al. for better encapsulation of the device. The recitation of 'the metal thin film provided under the seal cover plate to transfer heat' has not been given patentable weight because is considered an intended use recitation. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987). Furthermore it is noted that aluminum being very good conductor of heat, it would transfer the heat from the device.

AAPA and Shi disclose the claimed invention except for the metal thin film adhering to the portion of the flat seal cover where the moisture-absorbing agent is not formed. It would have been an obvious matter of design choice to have the metal thin film adhering to the portion of the seal cover where the moisture-absorbing agent and the sealant are not formed since the applicant has not disclosed that this design of the thin metal film solves any stated problem and it appears that the invention would perform equally well with the thin metal film covering the entire seal cover plate as disclosed by Shi.

Claim 32 essentially recites the same limitation as of claim 31 and hence is rejected by AAPA and Shi. Furthermore AAPA and Shi disclose the claimed invention except for the metal thin film adhering to the portion of the flat seal cover where the moisture-absorbing agent is not formed and the sealant is not attached. It would have been an obvious matter of design choice to have the metal thin film adhering to the portion of the seal cover where the moisture-absorbing agent and the sealant are not formed since the applicant has not disclosed that this design of the thin metal film solves any stated problem and it appears that the invention would perform equally well with the thin metal film covering the entire seal cover plate, including the moisture-absorbing agent and the sealant as disclosed by Shi and AAPA.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior art and U.S. Patent 6,383,048 to Yang et al. and further in view of U.S. Patent 6,195,142 to Gytoku et al.

Regarding claim 12 applicants' admitted prior art and Yang do not exemplify the protective film having single-layer or multi-layer structure of moisture absorbing or moisture-proof layer.

Gytoku discloses in Fig. 5 the protective layer 7 having a single layer structure having insulating compound layer of GeO, SiO, SiO₂ (known as silica gel which is moisture absorbing).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include moisture-proof layer as taught by Gytoku in the protective film of the applicants' admitted prior art and Yang for preventing moisture penetration and oxidation of the electron-injecting electrode and hence enhancement of stable driving period of the organic EL device.

Claims 16,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior art and U.S. Patent 6,383,048 to Yang et al. and further in view of U.S. Patent 6,180,176 to Gledhill et al.

Referring to claims 16 and 17 Yang discloses a high thermal conductivity material used for heat exhaust layer but do not disclose the heat exhausting material formed of carbon group material.

Gledhill in pertinent art of providing elastomer surfaces on supporting substrates discloses (column 10 lines 9-18) coating of carbon dag or graphite used for heat absorbent properties.

The selection of known materials for a known purpose is generally considered to be within the skill of the art. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the heat exhaust layer of Yang formed of carbon material for its heat-absorbent properties as disclosed by Gledhill because the selection of known material for a known purpose is within the skill the art.

Regarding claim 17 Gledhill discloses (column 5 lines 33-35) graphite film used commercially as heat absorbent coating. The reason for combining art as in claim 7 applies.

Response to Arguments

Applicant's arguments submitted February 20, 2007 with respect to claim 1 have been considered but are not persuasive.

In response to Applicants' arguments that the applied references whether taken individually or in combination do not teach or suggest 'flat seal cover plate' of independent claim 26, the Examiner respectfully disagrees. AAPA discloses the seal cover plate 7 in Fig. 1 is a flat plate. The Examiner notes that the claim limitations are given the broadest interpretation and hence the seal cover plate 7 of Fig. 1 can be considered flat. Regarding the seal cover plate (of claims 26,31,32 Figs. 6-8 of instant application) the applicant in specification (para [0069]) discloses it as 'formed in a plane

shape'. It would have been an obvious matter of design choice to have the seal cover plate formed in a plane shape since the applicant has not disclosed that this design of the seal cover plate solves any stated problem and is for any particular reason and it appears that the invention would perform equally well with the flat seal cover plate as disclosed in Fig. 1 of AAPA.

Furthermore the Examiner brings to applicant's attention that the sealant having a space for injecting an inactive gas is not shown in any of the Figs. and is broadly interpreted as enclosing a space filled with inactive gas as disclosed in AAPA (para [0012],[0013]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Application Publications 2004/0004436 to Yoneda and 2002/0070663 to Ogura et al. disclose flat seal cover plate. USPN 5,189, ⁴⁰⁵~~204~~ to Yamashita et al. discloses a thin metal film provided under the seal plate for transferring heat from the EL device.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sikha Roy

Sikha Roy
Primary Examiner
Art Unit 2879